

## CLAIMS:

1. An electrophoretic display panel (1) for displaying a picture comprising
  - a pixel (2) having
    - an electrophoretic medium (5) comprising first and second charged particles (6,7), the first charged particles (6) having a first optical property, the second charged particles (7) having a second optical property different from the first optical property, and
    - an optical state depending on positions of the particles (6,7),
    - particle movement means (10,11,100) arranged to enable a picture movement of the first and the second particles (6,7) to their respective position for displaying the picture, and
    - particles movement decoupling means arranged to provide unequal abilities of the first and the second particles (6,7) to move for substantially decoupling the picture movement of the first particles (6) from the picture movement of the second particles (7),
- 15 characterized in that  
the particles movement decoupling means (24,25) are arranged to provide unequal interactions of the first and the second particles (6,7) with their respective surroundings for providing the unequal abilities of the first and the second particles (6,7) to move.
- 20 2. A display panel as claimed in claim 1 characterized in that
  - the particles movement decoupling means comprise first particles movement preventing means arranged to substantially prevent the first particles from moving during the picture movement of the second particles, and
  - the particle movement means are further arranged
    - to enable the picture movement of the first particles and subsequently
    - to enable the picture movement of the second particles.
- 25 3. A display panel as claimed in claim 2 characterized in that the picture movement of the first particles is substantially parallel to the picture movement of the second particles.

4. A display panel as claimed in claim 1 characterized in that
- the picture movement of the first particles is substantially along a first axis,
  - the picture movement of the second particles is substantially along a second axis
- 5 different from the first axis, and
- the particles movement decoupling means comprise
    - first particles movement preventing means arranged to substantially prevent the first particles from moving substantially along the second axis during the picture movement of the second particles along the second axis, and
    - second particles movement preventing means arranged to substantially prevent the second particles from moving substantially along the first axis during the picture movement of the first particles along the first axis .

10 5. A display panel as claimed in claim 4 characterized in that the first axis is  
15 substantially perpendicular to the second axis.

20 6. A display panel as claimed in claim 5 characterized in that

- the first particles movement preventing means are provided with first physical boundaries in the medium extending substantially perpendicular to the second axis to substantially prevent the first particles from moving substantially along the second axis, and
- the second particles movement preventing means are provided with second physical boundaries in the medium extending substantially perpendicular to the first axis to substantially prevent the second particles from moving substantially along the first axis.

25 7. A display panel as claimed in claim 4 characterized in that the second particles movement preventing means are provided in a portion of the pixel, and the particle movement means are further arranged

30 - to enable the second particles to occupy the portion of the pixel, subsequently

- to enable the picture movement of the first particles and subsequently
- to enable the picture movement of the second particles.

8. A display panel as claimed in claim 7 characterized in that the first particle movement preventing means are provided with first physical boundaries in the medium extending substantially perpendicular to the second axis to substantially prevent the first particles from moving substantially along the second axis.

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9. A display panel as claimed in claim 4 characterized in that the particle movement means are further arranged

- to enable a reset movement of the first particles along the first axis to a first reset position prior to the picture movement of the first particles, and

10 - to enable a reset movement of the second particles along the second axis to a second reset position prior to the picture movement of the second particles.

10. A display panel as claimed in claim 4 characterized in that the particle movement means comprise

15 - first electrodes for receiving potentials to generate electric fields enabling the reset movement and/or the picture movement of the first particles, and  
- second electrodes for receiving potentials to generate electric fields enabling the second reset movement and/or the picture movement of the second particles.

20 11. A display panel as claimed in claim 10 characterized in that the first and the second electrodes have substantially flat surfaces facing the particles, and the substantially flat surfaces of the first electrodes are substantially perpendicular to the substantially flat surfaces of the second electrodes.

25 12. A display panel as claimed in claim 10 characterized in that the pixel has a viewing surface for being viewed by a viewer, the first and the second electrodes have substantially flat surfaces facing the viewer, and the surfaces are substantially parallel to the viewing surface.

30 13. A display panel as claimed in claim 12 characterized in that the surfaces of the electrodes are present in a substantially flat plane.

14. A display panel as claimed in claim 1 characterized in that

- the electrophoretic medium further comprises third and fourth charged particles, the third charged particles having a third optical property, the fourth charged particles having a fourth optical property; the first, the second, the third and the fourth optical property being different from each other; the sign of the charge of the first and the second particles being equal and being opposite to the sign of the charge of the third and the fourth particles;
- the optical state further depends on positions of the third and the fourth particles,
- the particle movement means are further arranged to enable a picture movement of the third and fourth particles to their respective position for displaying the picture,
- particles movement decoupling means arranged to provide unequal abilities of the particles to move for substantially decoupling the picture movement of the third particles from the picture movement of the fourth particles, and
- the particles movement decoupling means are arranged to provide unequal interactions of the particles with their respective surroundings for providing the unequal abilities of the particles to move.

15. A display device comprising the display panel as claimed in claim 1.

16. Method of driving an electrophoretic display panel for displaying a picture, the  
20 electrophoretic display panel comprising
- a pixel having
    - an electrophoretic medium comprising first and second charged particles, the first charged particles having a first optical property, the second charged particles having a second optical property different from the first optical property, and
    - an optical state depending on positions of the particles,
  - particle movement means, and
  - particles movement decoupling means,
- the method comprising
- a picture movement of the first and the second particles to their respective position for displaying the picture, and
  - providing unequal interactions of the first and the second particles with their respective surroundings for providing unequal abilities of the first and the second particles to move for substantially decoupling the picture movement of the first particles from the picture movement of the second particles.